

Chapter 23

The Demand for Money

Money Demand

Two types of theories:

- Transactions theories
 - emphasize “medium of exchange” function
 - also relevant for M1
- Portfolio theories
 - emphasize “store of value” function
 - relevant for M2, M3
 - not relevant for M1. (As a store of value, M1 is **dominated** by other assets.)

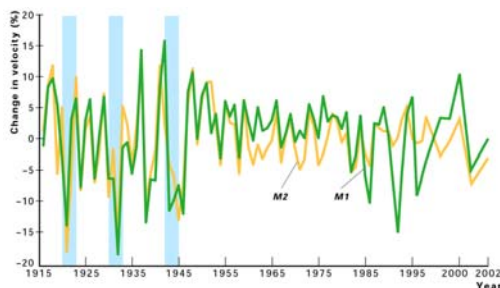
Transactions Motives

- Early theories were based on the idea that people demand money for making transactions.
- Real money balances are balances people hold to make transactions.
- Velocity of money is the number of times a dollar is spent each year on final purchases.

Fisher Equation of Exchange

- Equation of exchange: $MV = PY$.
- Assuming V is constant turns the equation of exchange into a money demand function.
- Fisher assumed that velocity was constant, but in fact it has fluctuated significantly.

Figure 23.1 Changes in Velocity of M1 and M2 in the United States



Keynes's Liquidity Preference Theory

- Keynes emphasized the sensitivity of money demand to changes in interest rates.
- The model has “speculative,” “transactions,” and “precautionary” motives for holding money.
- Expressed symbolically, Keynes's money demand model is: $M/P = L(Y, i)$.

Portfolio Allocation Motives

- People decide how much money to hold by comparing money relative to other assets.
- The demand for real balances increases less than proportionately with real income.
- People decide asset holdings by comparing the relative expected returns on assets.
- When allocating assets, risk, liquidity, and information benefits are also considered.

A simple portfolio theory

$$(M/P)^d = L(r_s, r_b, \pi^e, W),$$

where

r_s = expected real return on stock

r_b = expected real return on bonds

π^e = expected inflation rate

W = real wealth

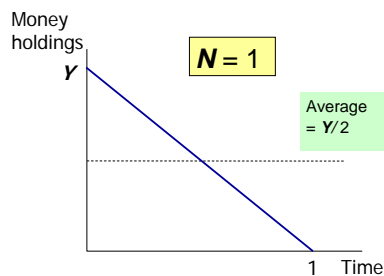
Friedman's Model of Money Demand

- Friedman proposed a model that generally relied on asset demand determinants.
- Friedman argued that money holdings depend on an individual's permanent income, Y^* .
- Symbolically, Friedman's money demand model is: $M/P = L(Y^*, i - i_M, \pi^e - i_M)$.

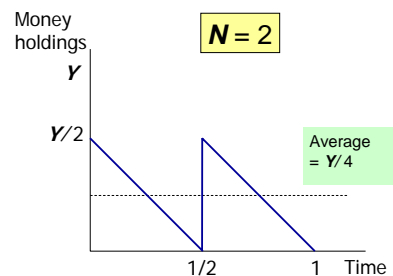
The Baumol-Tobin Model

- A transactions theory of money demand.
- Notation:
 - Y = total spending, done gradually over the year
 - i = interest rate on savings account
 - N = number of trips consumer makes to the bank to withdraw money from savings account
 - F = cost of a trip to the bank (e.g., if a trip takes 15 minutes and consumer's wage = \$12/hour, then $F = \$3$)

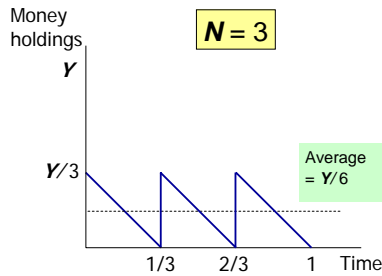
Money holdings over the year



Money holdings over the year



Money holdings over the year



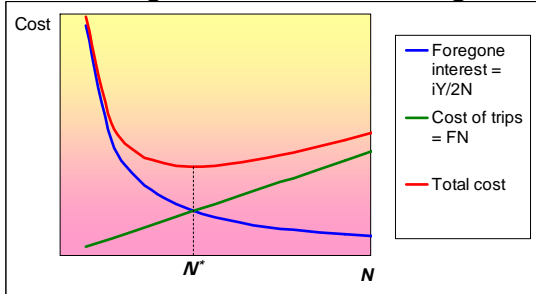
The cost of holding money

- In general, average money holdings = $Y/2N$
- Foregone interest = $i \times (Y/2N)$
- Cost of N trips to bank = $F \times N$
- Thus,

$$\text{total cost} = i \times \frac{Y}{2N} + F \times N$$

- Given Y , i , and F , consumer chooses N to minimize total cost

Finding the cost-minimizing N



The money demand function

- The cost-minimizing value of N : $N^* = \sqrt{\frac{iY}{2F}}$
- To obtain the money demand function, plug N^* into $(Y/2N)$

$$\text{average money holding} = \sqrt{\frac{YF}{2i}}$$

- Money demand depends positively on Y and F , and negatively on i .

The money demand function

- The Baumol-Tobin money demand function:

$$(M/P)^d = \sqrt{\frac{YF}{2i}} = L(i, Y, F)$$

How the B-T money demand func. differs from the money demand func. from other theories:

- B-T shows how F affects money demand
- (B-T implies that the income elasticity of money demand = 0.5, interest rate elasticity of money demand = -0.5)

EXERCISE:

The impact of ATMs on money demand



During the 1980s, automatic teller machines became widely available.

How do you think this affected N^* and money demand? Explain.

Financial Innovation, Near Money, and the Demise of the Monetary Aggregates

Examples of financial innovation:

- many checking accounts now pay interest
- very easy to buy and sell assets
- mutual funds are baskets of stocks that are easy to redeem - just write a check

Non-monetary assets having some of the liquidity of money are called **near money**.

Money & near money are close substitutes, and switching from one to the other is easy.

Financial Innovation, Near Money, and the Demise of the Monetary Aggregates

- The rise of **near money** makes money demand less stable and complicates monetary policy.
- 1993: the Fed switched from targeting monetary aggregates to targeting the Federal Funds rate.
- This change may help explain why the U.S. economy was so stable during the rest of the 1990s.

Chapter 24

Linking the Financial System and the Economy: The *IS-LM-FE* Model

The *IS-LM-FE* Model

- The financial and goods market are both in equilibrium when *IS*, *FE*, and *LM* intersect.
- The economy will restore equilibrium if the *IS* curve, the *LM* curve, or the *FE* line shifts.
- The neutrality of money implies that a one-time change in the nominal money supply affects only nominal variables.

Figure 24.7 Changing the Equilibrium

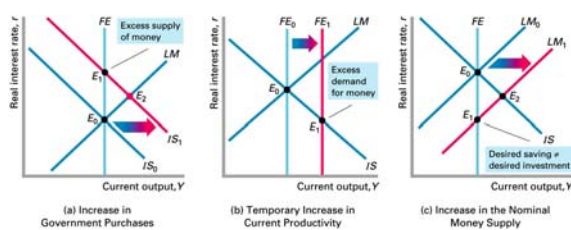
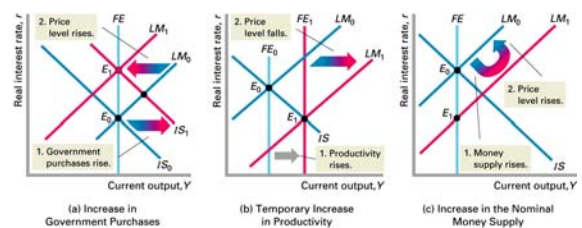


Figure 24.8 Price Level Adjustment to Restore Equilibrium



Chapter 27

Information Problems and Channels for Monetary Policy

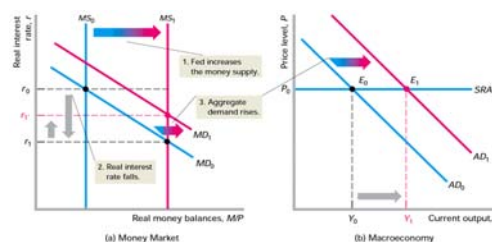
Macroeconomic Costs of Information Problems

- Information problems can create obstacles for borrowers who need external financing.
- Asymmetric information makes it difficult and costly to match savers and borrowers.
- Information problems typically make external financing more expensive.
- Investment spending is tied to the amount of a firm's internal funds.

The Money Channel

- The money channel refers to the money supply effects on interest-sensitive components of aggregate demand.
- Loans by financial institutions play no special role in the money channel.
- The money channel ignores financial intermediaries' role in information costs.

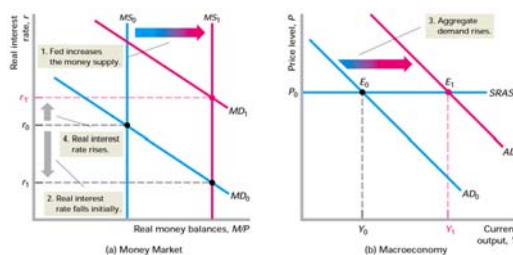
Figure 27.3 Monetary Expansion Effects in the Money Channel



The Bank Lending Channel

- The bank lending channel emphasizes the behavior of bank-dependent borrowers.
- A monetary expansion increases banks' ability to lend.
- Increases in loans to bank-dependent borrowers increases their spending.

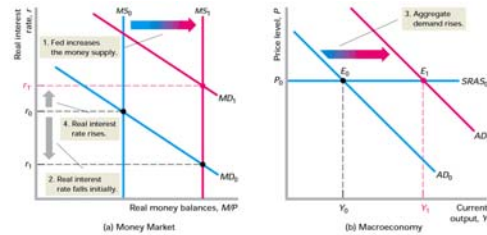
Figure 27.4 Monetary Expansion Effects in the Bank Lending Channel



The Balance Sheet Channel

- The balance sheet channel refers to the impact of money supply changes on borrowers' net worth.
- A monetary contraction by raising interest rates will lower a firm's net worth and output.
- Holdings of liquid assets also reduce the likelihood of financial distress.

Figure 27.5 Monetary Expansion Effects in the Balance Sheet Channel



Empirical Evidence

- The evidence shows that financial intermediaries play a role in determining output.
- Credit crunches (*a decline in either the ability or the willingness of banks to lend*) have been felt more by borrowers with high nonbank finance costs.
- There is a link between the size of the private intermediary sector and economic growth and the rate of capital accumulation.